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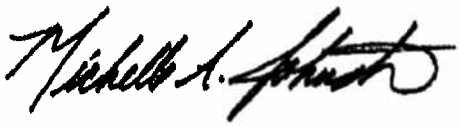
ANALYTICAL REPORT

Job Number: 280-8169-1

Job Description: PFC Analysis

For:
Dalton Utilities
1200 V.D. Parrott Jr. Parkway
Dalton, GA 30721

Attention: Ms. Dena Haverland



Approved for release.
Michelle Johnston
Project Manager I
10/21/2010 7:14 AM

Michelle Johnston
Project Manager I
michelle.johnston@testamericainc.com
10/21/2010
Revision: 1

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE
Client: Dalton Utilities
Project: PFC Analysis
Report Number: 280-8169-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The PFC method DV-LC-0012 is an isotope dilution method; therefore, the internal standards are added prior to the extraction process. This technique inherently corrects for variability in the extraction efficiency due to sample matrix. Dilution of samples beyond the ability of the instrument to detect the internal standards is not recommended. Analyses performed at a dilution level requiring additional internal standard to be added after the extraction step in order to quantitate results has been shown to yield results with a significant low bias. As a result, data have been reported that exceed the calibration range and are qualified as estimated.

The PFC method is an isotope dilution method where the internal standards are added prior to extraction and used to quantitate results; therefore, the use of dilution factors is inappropriate. Application of dilution factors would yield results that are artificially high. Reporting limits and method detection limits are not adjusted for dilutions unless samples are fortified with additional internal standard, which is not recommended.

Internal standard abundances may vary depending upon both recovery and the dilution at which the analysis is performed. This is an inherent feature of the isotope dilution technique and is not indicative of bias to the reported results.

Receipt
The following report contains the analytical results for one soil sample received at TestAmerica Denver on October 7, 2010, according to documented sample acceptance procedures. The sample was received in good condition at a temperature of 3.6°C. No anomalies were encountered during sample receipt.

PFC
Sample AB-5 (280-8169-1) was analyzed for PFC in accordance with SOP DV-LC-0012. The sample was prepared on 10/15/2010 and analyzed on 10/19/2010.

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to high concentrations of target analytes, sample AB-5 (280-8169-1) had to be analyzed at a 5X dilution. Internal standards (IS) were not fortified, therefore, the IS percent recoveries need to be multiplied by 5 and the MDLs/RLs were not updated due to limitations in the software.

Perfluorobutanoic acid (PFBA) was detected in method blank MB 280-35882/1-A at a level less than one half the reporting limit; therefore, corrective action is deemed unnecessary. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

The MS/MSD analyses associated with prep batch 280-35882 was performed on sample 280-8066-6. The MS and MSD exhibited spike compound recoveries and/or RPD data outside the control limits for Perfluorotetradecanoic acid (PFTeA) and Perfluorotridecanoic acid (PFTriA). The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

Internal standard responses were outside the control limits for sample AB-5 (280-8169-1) and for the MS/MSD associated with prep batch 280-35882. The sample shows evidence of matrix and target analyte interferences. This is an isotope dilution method and the sample was diluted 5X without fortifying the internal standards. This means the internal standards were also diluted and the recoveries could not be accurately calculated.

Refer to the QC report for details.

No other difficulties were encountered during the PFC analysis.

All other quality control parameters were within the acceptance limits.

Percent Solids
Sample AB-5 (280-8169-1) was analyzed for percent solids in accordance with EPA SW846 3550C. The sample was analyzed on 10/08/2010.

The Percent Moisture sample duplicate analysis data associated with analytical batch 280-34968 exhibited RPD data outside the QC

control limits.

Refer to the QC report for details.

No other difficulties were encountered during the % solids analysis.

All other quality control parameters were within the acceptance limits.

Revision
The report was revised to include the internal standard outage and dilution narratives under the PFC section of the case narrative.

PJ 1/2

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-8169-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 36351

Lab Sample ID: STD0020 280-36351/4 Client Sample ID:

SMC 10-20-10

Date Analyzed: 10/19/10 01:48 Lab File ID: pc50J18b008.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutane Sulfonate (PFBS)	4.84	Baseline	williamst	10/19/10 12:12

Lab Sample ID: ICV 280-36351/11 Client Sample ID:

Date Analyzed: 10/19/10 03:20 Lab File ID: pc50J18b015.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	3.63	Baseline	williamst	10/19/10 12:27
Perfluorobutane Sulfonate (PFBS)	4.84	Baseline	williamst	10/19/10 12:27

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-8169-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 36437

Lab Sample ID: CCV 280-36437/63 Client Sample ID:

Date Analyzed: 10/19/10 19:08 Lab File ID: pc50J18b107.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA (IS)	3.57	Baseline	williamst	10/20/10 06:59

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-8169-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 36351

Lab Sample ID: STD0002 280-36351/1 IC Client Sample ID:

Date Analyzed: 10/19/10 01:09 Lab File ID: pc50J18b005.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutane Sulfonate (PFBS)	4.83	Baseline	williamst	10/19/10 12:12
Perfluorohexanoic acid (PFHxA)	5.31	Assign Peak	williamst	10/19/10 12:11

Lab Sample ID: STD0005 280-36351/2 IC Client Sample ID:

Date Analyzed: 10/19/10 01:22 Lab File ID: pc50J18b006.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutane Sulfonate (PFBS)	4.84	Baseline	williamst	10/19/10 12:11

Lab Sample ID: STD0020 280-36351/4 Client Sample ID:

Date Analyzed: 10/19/10 01:48 Lab File ID: pc50J18b008.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutane Sulfonate (PFBS)	4.84	Baseline	williamst	10/19/10 12:12

Lab Sample ID: STD1250 280-36351/9 IC Client Sample ID:

Date Analyzed: 10/19/10 02:54 Lab File ID: pc50J18b013.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	3.63	Baseline	williamst	10/19/10 12:13
Perfluoropentanoic acid (PFPA)	4.72	Baseline	williamst	10/19/10 12:13

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-8169-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 36351

Lab Sample ID: ICV 280-36351/11 Client Sample ID:

Date Analyzed: 10/19/10 03:20 Lab File ID: pc50J18b015.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	3.63	Baseline	williamst	10/19/10 12:27
Perfluorobutane Sulfonate (PFBS)	4.84	Baseline	williamst	10/19/10 12:27

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-8169-1

SDG No.:

Instrument ID: LC_LCMS5 Analysis Batch Number: 36437

Lab Sample ID: CCV 280-36437/63 Client Sample ID:

Date Analyzed: 10/19/10 19:08 Lab File ID: pc50J18b107.d GC Column: Gemini-NX ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C4 PFBA (IS)	3.57	Baseline	williamst	10/20/10 06:59

SAMPLE SUMMARY

Client: Dalton Utilities

Job Number: 280-8169-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-8169-1	AB-5	Solid	10/06/2010 1405	10/07/2010 0900

EXECUTIVE SUMMARY - Detections

Client: Dalton Utilities

Job Number: 280-8169-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
280-8169-1	**AB-5**					
Perfluorobutane Sulfonate (PFBS)		1700		3.1	ug/Kg	DV-LC-0012
Perfluorobutanoic acid (PFBA)		230	B	3.1	ug/Kg	DV-LC-0012
Perfluorodecanoic acid (PFDA)		380		3.1	ug/Kg	DV-LC-0012
Perfluorododecanoic acid (PFDoA)		120		7.8	ug/Kg	DV-LC-0012
Perfluoroheptanoic acid (PFHpA)		56		3.1	ug/Kg	DV-LC-0012
Perfluorohexane Sulfonate (PFHxS)		13		3.1	ug/Kg	DV-LC-0012
Perfluorohexanoic acid (PFHxA)		310		3.1	ug/Kg	DV-LC-0012
Perfluorononanoic acid (PFNA)		86		3.1	ug/Kg	DV-LC-0012
Perfluorooctane Sulfonamide (FOSA)		280		7.8	ug/Kg	DV-LC-0012
Perfluorooctanoic acid (PFOA)		310		7.8	ug/Kg	DV-LC-0012
Perfluorooctane Sulfonate (PFOS)		630		3.1	ug/Kg	DV-LC-0012
Perfluoropentanoic acid (PFPA)		140		3.1	ug/Kg	DV-LC-0012
Perfluorotetradecanoic acid (PFTeA)		25		7.8	ug/Kg	DV-LC-0012
Perfluorotridecanoic Acid (PFTriA)		110		7.8	ug/Kg	DV-LC-0012
Perfluoroundecanoic acid (PFUnA)		250		7.8	ug/Kg	DV-LC-0012
Percent Moisture		36		0.10	%	D-2216

METHOD SUMMARY

Client: Dalton Utilities

Job Number: 280-8169-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Perfluoronated Hydrocarbons	TAL DEN	TAL-DEN DV-LC-0012	
Leaching procedure for PFCs	TAL DEN		TAL-DEN PFC leach
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

TAL-DEN = TestAmerica Laboratories, Denver, Facility Standard Operating Procedure.

METHOD / ANALYST SUMMARY

Client: Dalton Utilities

Job Number: 280-8169-1

Method	Analyst	Analyst ID
TAL-DEN DV-LC-0012	Williams, Teresa L	TLW
ASTM D-2216	Berry III, Paul B	PBB

Client: Dalton Utilities

Job Number: 280-8169-1

Client Sample ID: **AB-5**

Lab Sample ID: 280-8169-1
Client Matrix: Solid

% Moisture: 36.0

Date Sampled: 10/06/2010 1405
Date Received: 10/07/2010 0900

DV-LC-0012 Perfluoronated Hydrocarbons

Method:	DV-LC-0012	Analysis Batch: 280-36437		Instrument ID:	LC_LCMS5
Preparation:	PFC leach	Prep Batch: 280-35882		Lab File ID:	pc50J18b100.d
Dilution:	1.0			Initial Weight/Volume:	10.06 g
Date Analyzed:	10/19/2010 1738			Final Weight/Volume:	50 mL
Date Prepared:	10/15/2010 0854			Injection Volume:	25 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Perfluorobutane Sulfonate (PFBS)		1700		1.3	3.1
Perfluorobutanoic acid (PFBA)		230	B	0.53	3.1
Perfluorodecanoic acid (PFDA)		380		1.2	3.1
Perfluorododecanoic acid (PFDoA)		120		1.3	7.8
Perfluoroheptanoic acid (PFHpA)		56		1.1	3.1
Perfluorohexane Sulfonate (PFHxS)		13		1.2	3.1
Perfluorohexanoic acid (PFHxA)		310		0.31	3.1
Perfluorononanoic acid (PFNA)		86		0.78	3.1
Perfluorooctane Sulfonamide (FOSA)		280		1.9	7.8
Perfluorooctanoic acid (PFOA)		310		1.6	7.8
Perfluorooctane Sulfonate (PFOS)		630		0.58	3.1
Perfluoropentanoic acid (PFPA)		140		1.4	3.1
Perfluorotetradecanoic acid (PFTeA)		25		2.3	7.8
Perfluorotridecanoic Acid (PFTriA)		110		1.8	7.8
Perfluoroundecanoic acid (PFUnA)		250		2.8	7.8

Surrogate	%Rec	Qualifier	Acceptance Limits
13C8 PFOA	114		57 - 153
13C8 PFOS	109		70 - 130

General Chemistry

Client Sample ID: **AB-5**

Lab Sample ID: 280-8169-1
Client Matrix: Solid

Date Sampled: 10/06/2010 1405
Date Received: 10/07/2010 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	36		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-34968 Date Analyzed: 10/08/2010 0934 DryWt Corrected: N